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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/805,760

Filing Date: March 22, 2004

Appellant(s): BRISTOW ET AL.

Krista Kostiew
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9 May 2008 appealing from the Office action mailed 12 December 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Notice of Appeal filed in commonly-assigned US Application No. 11/618950

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,224,706	Matich	05-2001
5,968,629	Masui et al.	10-1999
4,529,641	Holtrop et al.	07-1985
5,854,149	Nagayama et al.	12-1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim 23 is rejected under 35 U.S.C. 102(b) as being anticipated by Matich (U.S. Patent 6,224,706). Matich shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising thermoforming a substrate sheet to form a shaped substrate (Figure 4, element 31; Column 4, lines 15-30, 42-54), wherein the substrate is an air-permeable material to allow a vacuum to be applied through the shaped substrate (Column 3, lines 31-36); wherein thermoforming the substrate sheet further comprises heating a substrate sheet to a temperature (Column 4, lines 27-30; It is noted heating the sheet is the positively-claimed method step, while “[allowing] lofting of fibers” is only an intended use of the heating step, and therefore, not a positively-recited method step.); pulling a vacuum through the shaped substrate (Column 4, lines 31-36); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 31-40).

Claims 2-11, 13, 14, 16, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matich, in view of Masui et al. (U.S. Patent 5,968,629).

(Note: Claims 18-20 have been cut and pasted into this section. Claims 18-20 were rejected under Matich and Masui in the Final Office Action, however they were placed under the wrong heading. They have now been moved to the correct section. The substance and grounds of the rejection body remains the same.)

Regarding Claims 3 and 21, Matich shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising thermoforming a substrate sheet to form a shaped substrate (Figure 4, element 31; Column 15-30),

wherein the substrate is an air-permeable material to allow a vacuum to be applied through the shaped substrate (Column 3, lines 31-36); pulling a vacuum through the shaped substrate (Column 4, lines 31-36); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 31-40). Although Matich shows using an air-permeable substrate, he does not specifically show using a fiber-reinforced plastic material of a specific void content. Masui et al., hereafter “Masui,” show that it is known to carry out a method of forming a layered article, wherein the substrate is a fiber-reinforced plastic material having a void content of 50 vol% (Column 2, lines 33-36). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui’s fiber-reinforced plastic material as the substrate in Matich’s molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claim 2, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, including a method wherein the film layer further comprises a compatible layer (Column 4, lines 39-40; It is being interpreted that the layer of paint or print is compatible with the substrate 31), meeting applicant’s claim.

Regarding Claims 4 and 5, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not show a specific void content for the substrate. Masui shows that it is known to carry out a method wherein the void content is 50vol% (Column 2, lines 33-35). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui’s fiber-reinforced plastic material with a void content of 50vol% as the substrate in Matich’s molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claim 6, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not specific the dimension of a fiber filler in the substrate material. Masui shows that it is known to carry out a method wherein filler fibers having a fiber diameter of about 6um to about 25um (Column 6, lines 39-40), and a fiber length of about 2mm to about 75mm (Column 6, lines 40-41). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was

made to use Masui's fiber dimensions in the substrate during Matich's molding process in order to permit the desired percentage of voids in the substrate (see Masui, Column 6, lines 46-47).

Regarding Claim 7, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not show using a foraminated substrate. Masui shows that it is known to carry out a method wherein the shaped substrate is foraminated (Column 5, lines 21-22; it is being interpreted that "expanded" implies a foamed structure, which is functionally equivalent to a foraminated structure.). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui's foraminated substrate as that during Matich's molding process in order to enhance the acoustic absorbability of the final product.

Regarding Claim 8, Matich shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising thermoforming a substrate sheet to form a shaped substrate (Figure 4, element 31; Column 15-30), wherein the substrate is an air-permeable material to allow a vacuum to be applied through the shaped substrate (Column 3, lines 31-36); pulling a vacuum through the shaped substrate (Column 4, lines 31-36); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 31-40). Although Matich shows using an air-permeable substrate, he does not specifically show using an open-celled fiber-reinforced plastic material. Masui shows that it is known to carry out a method of forming a layered article, wherein the substrate is an open-celled fiber-reinforced plastic material (Column 5, lines 21-23; it is being interpreted that "expanded" implies an open-celled structure). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui's open-celled fiber-reinforced plastic material as the substrate in Matich's molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claims 9 and 10, Matich shows the process as claimed as discussed in the rejection of Claim 8 above, but he does not show a specific percentage of fibers and resin in his substrate. Masui shows that it is known to carry out a method wherein the substrate sheet comprises 50wt% plastic material and 50wt% of fibers (Column 6,

lines 19-20). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui's specific composition of the substrate as that in Matich's molding process in order to enhance the acoustic absorbability of the final product.

Regarding Claim 11, Matich shows the process as claimed as discussed in the rejection of Claim 9 above, but he does not show using a particular plastic in his substrate. Masui shows that it is known to carry out a method wherein the plastic material of the substrate is polyamide (Column 5, line 60). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui's specific polymer substrate as that during Matich's molding process in order to enhance the acoustic absorbability of the final product.

Regarding Claim 13, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, including a method further comprising disposing a tie-layer between the shaped substrate and the film layer (Figure 4, element 34), meeting applicant's claim.

Regarding Claim 14, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, including a method wherein thermoforming the substrate sheet further comprises heating a substrate sheet to a temperature (Column 4, lines 27-30; It is noted heating the sheet is the positively-claimed method step, while "[allowing] lofting of fibers" is only an intended use of the heating step, and therefore, not a positively-recited method step.), meeting applicant's claim.

Regarding Claim 16, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not show using non-woven scrim as part of his substrate. Masui shows that it is known to carry out a method wherein the substrate sheet further comprises a non-woven scrim disposed on the surface of the substrate sheet (Column 6, lines 31-32). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui's non-woven sheet on the substrate during Matich's molding process in order to improve the reinforcement of the substrate.

Regarding Claim 18, Matic shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising heating a substrate sheet to a temperature (Column 4, lines 27-30; It is noted heating the sheet is the positively-claimed method step, while “[allowing] lofting of fibers” is only an intended use of the heating step, and therefore, not a positively-recited method step.), disposing the substrate sheet against a membrane-assisted pressure box (Column 4, lines 15-18); pushing the substrate sheet onto a mold to form a shaped substrate (Column 4, lines 31-37); heating a film layer (Column 4, lines 27-28); pulling a vacuum through the shaped substrate (Column 4, lines 31-37); and pulling the film layer against the shaped substrate to form the layered article (Column 4, lines 21-36). Although Matich shows using an air-permeable substrate, he does not specifically show using a fiber-reinforced plastic material of a specific void content. Masui shows that it is known to carry out a method of forming a layered article, wherein the substrate is a fiber-reinforced plastic material having a void content of 50 vol% (Column 2, lines 33-36). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui’s fiber-reinforced plastic material as the substrate in Matich’s molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claim 19, Matich shows the process as claimed as discussed in the rejection of Claim 18 above, but he does not show a specific void content for the substrate. Masui shows that it is known to carry out a method wherein the void content is 50vol% (Column 2, lines 33-35). It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Masui’s fiber-reinforced plastic material with a void content of 50vol% as the substrate in Matich’s molding process in order to enhance the acoustic absorbing component of the final article (see Masui, Column 1, lines 65-67).

Regarding Claim 20, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, including a method further comprising disposing a tie-layer between the shaped substrate and the film layer (Figure 4, element 34), meeting applicant’s claim.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matich and Masui, further in view of Holtrop et al. (U.S. Patent 4,529,641).

(Note: Claims 18-20 have been cut and pasted out of this section. Claims 18-20 were rejected under Matich and Masui in the Final Office Action, however the claims were placed under the wrong heading. They have now been moved to the correct section.)

Regarding Claim 12, Matich shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not specifically show using plug-assist vacuum molding. Holtrop shows a method wherein the substrate sheet is thermoformed with a membrane assisted vacuum pressure forming method with plug assist (Column 5, lines 3-5). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Holtrop's plug assist vacuum molding as that of Matich's vacuum molding process in order to facilitate the most efficient vacuum molding available.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matich, Masui, and Holtrop, further in view of Nagayama et al. (U.S. Patent 5,854,149). Matich shows the process as claimed as discussed in the rejection of Claim 14 above, but he does not show heating to a temperature about 232C to about 371C. Nagayama shows that it is known to carry out a method wherein the heating temperature is 250C (Column 28, lines 57-66). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Nagayama's processing temperature during Matich's thermoforming process in order to properly process and form the specific molding material without overheating or underheating.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matich. *(Note: The following rejection applies to claim 22, but this heading was listed as "Claim 23" in the Final Office Action. As the body of this rejection describes Claim 22 only, this is recognized as a typographical error; the heading is now corrected.)*

Matich shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising thermoforming a substrate sheet to form a shaped substrate (Figure 4, element 31; Column 4, lines 15-30, 42-54), wherein the substrate is an air-permeable material to allow a vacuum to be applied through the shaped substrate (Column 3, lines 31-36); pulling a vacuum through the shaped substrate (Column 4, lines 31-36); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 31-40). Matich shows a cooling step after the substrate and film have been joined. However, selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results (See MPEP 2144.04 (IV)(C)). Therefore, It would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to include an intermediate cooling step in order to avoid unwanted deformation of the substrate prior to the attachment of the film.

(10) Response to Argument

(A)

On page 5 of the Brief, Appellant contends that Matich does not anticipate the instant invention of Claim 23 because he fails to disclose using a fiber reinforced plastic material of a specific void content as discussed on Page 3 of the Final Office Action. This is not persuasive because the discussion on Page 3 of the Final Office Action is relative to Claim 3, not Claim 23. It is maintained that Matich anticipates the invention of Claim 23 as noted on Page 2 of the Final Office Action.

Appellant also contends that Matich does not anticipate the instant invention of Claim 23 because he does not show pulling a vacuum through a thermoformed shaped substrate. This is not persuasive because it is maintained that Matich shows pulling a vacuum through a thermoformed shaped substrate. In Column 3, Matich discusses pressing the sheet and the block (substrate) together, and in Column 4, lines 13-40, Matich shows using a vacuum to evacuate air through the thermoformed shaped substrate and the sheet.

It is noted that even a flat substrate has a “shape”. Also, Matich does discuss an alternate embodiment wherein the substrate is specifically shaped (i.e. thermoformed) prior to the application of the vacuum (Column 4, lines 42-54).

With respect to alleging that Matich does not show “heating the substrate sheet to a temperature sufficient to loft the fibers”, applicant’s arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

(B)

Appellant contends that Matich does not suggest the claim because a vacuum is not pulled through a shaped substrate, there is no thermoformed substrate, and there is no film layer pulled onto the shaped substrate. These arguments are not persuasive as discussed in section (A) above.

Appellant contends that the process of Matich does not suggest the specifically-claimed void content because his process would “seemingly...destroy this void content”. This is not persuasive because there is no evidence to support this assertion; attorney’s arguments cannot take the place of evidence in the record (MPEP 2145).

Appellant contends that there is no motivation to combine Matich and Masui. This is not persuasive as discussed in the Response to Arguments section of the Final Office Action, copied here for convenience: “Applicant contends that Matich and Masui are not properly combinable. This is not persuasive as motivation is clearly found in Masui at Column 1, lines 65-67: using a porous article allows for excellent sound absorption. It is conceivable that this property would be desirable in Matich’s molding process, as it is applicable to structural articles such as walls and roof tiles. Applicant contends that using Masui’s material in Matich’s process would render it unsatisfactory for its intended purpose. This is not persuasive because Matich’s process removes air from the substrate, however it does not remove the pores. Therefore, the pores would still be present and useful for sound absorption. It is maintained that Matich and Masui would be properly combinable and suggest the instant invention. It is noted that the

reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant (See MPEP 2144)."

Regarding Claim 22 (*note that Claim 23 does not require a cooling step; the heading in the 35 USC 103 section for Claim 23 was a typographical error. It is evident that the body of the rejection in the 35 USC 103 section was relevant to Claim 22 only. This typographical error is fixed above.*), appellant contends that there is no explanation as to how an intermediate cooling step would be employed in Matich. This is not persuasive because the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Matich's teaching of a cooling step at the end of the process, and the knowledge of obviousness of rearranging process steps found in MPEP 2144.04(IV)(C), provides a suggestion and motivation to rearrange the cooling step from taking place at the end of the process to taking place in the middle of the process.

Regarding Claims 4-5, appellant contends that Masui does not suggest the instant claimed method because he does not show a substrate that is used in a process wherein a vacuum is pulled through the substrate and a film is pulled onto a substrate. This is not persuasive because Masui was not cited to show these limitations. In response to applicant's arguments against the reference individually, one cannot show nonobviousness by attacking a reference individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Regarding Claim 7, appellant contends that it would not have been obvious to use Masui's foraminated substrate during Matich's molding process because it not explained how the foraminated substrate would be incorporated. This is not persuasive

because the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). It is maintained that it would have been obvious to use Masui's foraminated substrate during Matich's process for the reasons stated in the Final Office Action.

Appellant submits that he can be his own lexicographer, and that "foraminated" is discussed "merely for convenience" in his specification to mean a system having holes other than those formed by a network of cells in fluid communication with each other. This is not persuasive because this does not discredit Masui's expanded (i.e. foamed) structure being functionally equivalent to a foraminated structure. Furthermore, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It is maintained that Masui suggests a foraminated substrate.

Regarding Claim 14, appellant contends that Matich and Masui's do not suggest heating the substrate to a temperature to loft the fibers to expand in a z-direction. This is not persuasive because expanding in a z-direction is not claimed. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, as noted in the Response to Arguments section of the Final Office Action, "to loft fibers" is only an intended use of the heating step, and therefore, not a positively-recited method step.

(C)

Regarding Claim 12, In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce

the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the vacuum assist process taught by Holtrop is known to be an efficiency-adding process step. Holtrop discloses that his vacuum assist process is useful in thermoforming porous articles. Therefore, it is maintained that it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to use Holtrop's vacuum assist during Matich's overall thermoforming process because increased efficiency (e.g. reduced time, energy) is a widely recognized advantage.

Regarding Claims 18-20, these claims were properly rejected using only the disclosures of Matich and Masui (see body of rejection). Since the body of the rejection does not use or solicit any teaching from Holtrop, it is clear that only Matich and Masui are needed to suggest these claims. Since they were inadvertently placed under the wrong heading, this typographical error has been corrected in the Grounds of Rejection section above. Note that there has been no change of Grounds of Rejection.

(D)

With respect to Claim 15 and applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Nagayama shows a successful process using the claimed temperatures and thermoforming porous articles. Matich shows a process of thermoforming porous articles. It is maintained that it would have been obvious to use Nagayama's temperatures during Matich's process in order to properly process the specific molding material without damage thereto.

In response to applicant's argument that Nagayama and Matich are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both patents answer problems related to molding/thermoforming porous substrates and attaching additional layers to the porous substrates.

(E)

Appellant contends that Claim 23 is nonobvious over Matich. This is not persuasive because the body of Claim 23 was rejected under 35 USC 102 (anticipation), not 35 USC 103 (suggestion). Note that Claim 23 does not require a cooling step; the heading in the Final Office Action in the 35 USC 103 section for Claim 23 was a typographical error. It is clearly evident that the body of the rejection in the 35 USC 103 section was relevant to Claim 22 only. This typographical error is fixed above. All arguments pertaining to the 35 USC 102 rejection of Claim 23 are discussed as nonpersuasive in section (A) above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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